CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 95-160

AMENDMENT TO FINAL SITE CLEANUP REQUIREMENTS (ORDER NO. 89-028)

HEWLETT PACKARD COMPANY
3500 DEER CREEK ROAD
PALO ALTO
SANTA CLARA COUNTY

STANFORD UNIVERSITY
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Board), finds that:

1. **Site History**: The site covers approximately 24 acres and is located at 3500 Deer Creek Road in Palo Alto. Hewlett-Packard (HP) leases this site from Stanford University, the current owner. HP has operated a research and testing facility since 1974. Operations at the site have resulted in soil and groundwater contamination, the majority being volatile organic compounds.

   Over 850 cubic yards of soil were removed in 1988. Soil cleanup is considered complete and no additional soil cleanup is being required. Groundwater extraction began in January 1990 and has continued since then. Over the past five years, 31 million gallons of groundwater have been extracted and treated and about 737 pounds of VOCs have been removed.

2. **Regulatory Status**: The Board adopted Order No. 89-028 (Site Cleanup Requirements) on February 15, 1989. This amendment to Order No. 89-028 contains final site cleanup requirements for groundwater cleanup.

3. **Groundwater Cleanup Standards**: Cleanup standards for most constituents of concern were based on Department of Health Services (DHS) action levels in effect in 1989. Since then, DHS has established maximum contaminant levels (MCLs) for these chemicals. MCLs more accurately define concentrations necessary to support municipal water supply as a beneficial use. MCLs are more stringent than action levels for Freon 113, trans-1,2,-dichloroethylene, 1,1-DCA; and vinyl chloride. MCLs are less stringent than action levels for toluene, xylenes, and 1,2-dichlorobenzene.

4. **Modifications to Order 89-028**:

   a. **Groundwater Cleanup Standards**: Cleanup standards should be revised to meet the more stringent of U.S. Environmental Protection Agency primary MCLs or California primary MCLs. At this time it appears that the cleanup of groundwater to below MCLs may be technically impractical due to the difficulties in restoring aquifers with respect to the physical and chemical nature of the contaminants. For this reason, MCLs are acceptable to meet the intent of State Board Resolution No. 68-16. For those chemicals that do not have MCLs, standards were set so that the individual risk associated with the cleanup standards would be within acceptable levels.

   b. **Self-Monitoring Program (SMP)**: The SMP should be modified to reflect present conditions. Sampling of some wells will be discontinued because of redundancy. Currently samples are collected quarterly but monitoring trends show concentrations to be relatively steady and samples may be collected less frequently. In the future samples will be collected semiannually. Future changes to the reporting schedule and content of the semiannual report may be proposed by the discharger and are subject to Executive Officer approval. Additional sampling evaluations may be performed by the discharger at their discretion.

5. **CEQA**: This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

6. **Notification**: The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

7. **Public Hearing**: The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that Order No. 89-028 is amended as follows:

A. Table 1 is modified to read as follows:

Table 1
TARGET REMEDIATION GOALS FOR THE SOURCE AREA
AND CREEK TERRACE GROUNDWATER

Chemical	Concentration (ppb)	Source of Goal
Trichloroethylene (TCE)	5	State MCL
1,1,1-Trichloroethane (1,1,-TCA)	200	State MCL
Freon 113	1,200	State MCL
Toluene	150	State MCL
Acetone	3,500	Footnote 1
Xylenes	1750	State MCL
1,2,-Dichlorobenzene	600	State MCL
Cis 1,2,-Dichloroethylene	6	State MCL
Trans 1,2,-Dichloroethylene	10	State MCL
1,1-Dichloroethylene (1,1-DCE)	6	State MCL
1,1-Dichloroethane (1,1-DCA)	5	State MCL
Vinyl Chloride	0.5	State MCL

Footnote

1. MCLs and State Drinking Water Action Levels have not been established for this chemical. The value for acetone was established based on oral reference dose (Rfd) in the USEPA Integrated Risk Management Information System (IRIS).

B. Monthly technical reports as described in Provision C.4 are no longer required. The information required by the monthly technical reports will now be included in the semiannual reports

C. Provision C.10 shall be amended as follows:

Copies of all correspondence, technical reports, and other documents pertaining to compliance with the Prohibitions, specifications, and Provisions of this Order shall be provided to the following agencies:

a. Santa Clara Valley Water District
b. California EPA/DTSC

D. Table 1 of the Self-Monitoring Program is modified as follows:

Table 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSES

Well or Creek Station	Sampling Frequency	Analyses	Well or Creek Station	Sampling Frequency	Analyses
B-3	SA	8010	B-21	SA	8010
~~B-4~~	~~SA~~	~~8010/8020~~	~~B-22~~	~~Q~~	~~8010/8020~~
~~B-5~~	~~SA~~	~~8010/8020~~	~~B-24~~	~~SA~~	~~8010/8020~~
B-8	SA	8010/8020	~~B-25~~	~~Q~~	~~8010/8020~~
B-12	SA	8010	~~B-26~~	~~SA~~	~~8010~~
B-13	~~Q~~ ~~SA~~	8010/8020	~~EW-1~~	~~SA~~	~~8010/8020~~
B-14	~~Q~~ ~~SA~~	8010	~~EW-2~~	~~SA~~	~~8010/8020~~
~~B-16~~	~~SA~~	~~8010~~	~~EW-3~~	~~SA~~	~~8010~~
~~B-17~~	~~SA~~	~~8010/8020~~	D-1	~~Q~~ ~~SA~~	8010
~~B-18~~	~~SA~~	~~8010/8020~~	D-2	~~Q~~ ~~SA~~	8010
B-19	~~Q~~ ~~SA~~	8010	D-3	~~Q~~ ~~SA~~	8010
B-20	~~Q~~ ~~SA~~	8010			

Notes:
(1) Q = Quarterly SA = Semi-Annually
(2) 8010 = EPA Method 8010 or equivalent 8020 = EPA Method 8020 or equivalent
(3) Locations with the prefix B or EW are wells and locations with the prefix D are creek stations

References to quarterly chemical analysis and reporting in the SMP of Order No. 89-028 apply only to the semiannual monitoring. Semiannual reports submitted for the monitoring months of June and December will be consistent with the current quarterly report content and will include chemical concentration maps for TCE and cis 1,2-DCE. Hazard Indices calculations will no longer be required. Water level measurements will still be monitored quarterly and the data shall be included in the semiannual reports.

The discharger shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The discharger may propose changes in the above table; any proposed changes are subject to Executive Officer

approval.

C. Provision C.2.e.2 shall be added as follows

C.2.e.2) **COMPLETION DATE**: August 1, 2000

TASK: **TEN YEAR STATUS REPORT**
Submit a technical report acceptable to the Executive Officer which describes the results of the monitoring program during the last five years, any trends or changes in contaminant plume configurations, additional work or investigations performed, and projected work to be done in the next five years. The technical report shall also evaluate the feasibility of establishing a Non-Attainment Area for the site and/or measures necessary to establish a Non-Attainment Area.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 19, 1995.

Steven R. Ritchie
Executive Officer